

SCIENTIFIC RESEARCH IN THE PHILIPPINE ISLANDS.

THE valuable scientific work which is being carried out in the Government laboratories, Manila, has from time to time been noticed in these columns, and the record for the third year is stimulating reading and reflects the greatest credit on those by whom it has been done, and on the enlightened Government which has rendered it possible.

Dr. Paul Freer details in his report¹ the routine work of the laboratories and the nature of the investigations which have been carried out. In the chemical laboratory the analysis of foods and drugs, the standardisation of weights and measures, and the examination of the natural products of the country, vegetable and mineral, are some of the subjects dealt with. In the biological laboratory clinical investigations and pathological examinations are carried out, while valuable work is being done by the attached botanist and entomologist. The serum laboratory has been occupied in the preparation of an anti-rinderpest serum, which greatly mitigates the ravages of the disease, and of vaccine virus, while investigations have been made on plague and on the preparation of a cholera vaccine.

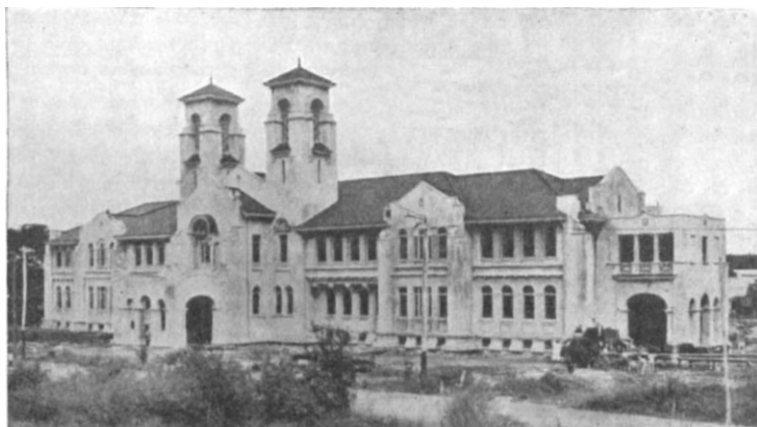


FIG. 1.—The New Laboratory Buildings, Manila.

While so much good work has been done in the past, we may expect considerable development in the future, as Dr. Freer is able to chronicle² the erection of new laboratories, the completeness of the arrangement and equipment of which will materially facilitate scientific investigation. The accompanying illustration shows the front elevation of the new buildings, which have the form of the letter "T," consist of two stories, and are erected on a site 23 acres in extent, on which an up-to-date hospital is also to be established, laboratory and clinical work thus being brought into proper contiguity.

The eastern half of the structure is devoted to biological work, and comprises rooms for the preparation of culture media, bacteriological and pathological laboratories and pathological museum, botanical room and herbarium, entomological room, and general biological laboratory, while the western half is devoted to chemical and physical work, and comprises laboratories for organic and physiological chemistry, a commercial laboratory with stills, baths, and machinery for carrying on commercial processes

¹ Third Annual Report of the Superintendent of the Bureau of Government Laboratories, Manila, 1905.

² Bureau of Government Laboratories, *Bull.* No. 22, 1905. (1) Description of New Buildings, by Paul C. Freer, M.D., Ph.D. (2) A Catalogue of the Library, by Mary Polk, Librarian.

on a laboratory scale, rooms for photometry, adjustment of weights and measures, assaying and mineral analysis, organic combustions, agricultural work, food analysis, &c., together with balance rooms, laboratory for physical chemistry and physics, and a room for spectroscopes and instruments of precision. All the work tables are supplied with gas, electricity for light and power, steam, vacuum, and compressed air. There are in addition boiler and engine house, cold storage, cremating furnace, photographic laboratory, incubating chambers, animal house, serum laboratory, &c.; nothing, in fact, seems to have been forgotten.

Lastly, there is an excellent library of some 17,000 volumes, and the list of current periodicals on all subjects is very complete. Reference is made to the difficulties which have had to be overcome in preserving the books from the ravages of damp and of insects in this tropical climate. The legs of the book presses (which are of metal) stand in tins of petroleum, which effectually prevents the access of insects when the books are on the shelves, and varnishing the books with the following varnish has been found to be of service:—pure white shellac 50 grams, resin 20 grams, bichloride of mercury 1 gram, alcohol 1000 c.c. The constituents are mixed, and after twenty-four hours are filtered. The report and bulletin are illustrated with a number of plates, plans, and charts.

R. T. HEWLETT.

DR. WALTER F. WISLICENUS.

ASTRONOMERS have universally acknowledged the value, the accuracy, and the completeness of the "Astronomische Jahresbericht," which, appearing annually for the last six years, has presented an admirable history of the progress of the science. The systematic arrangement and organisation of its contents have made this compilation a necessity in every observatory, and the announcement of the death of its originator, Dr. Walter Wislicenus, at the early age of forty-six will have been received with profound regret by all who know this

work. The deceased astronomer, who occupied the position of Professor extraordinary at Strassburg, began his career at Dresden, but the fame of Winnecke as a teacher, coupled with the advantages afforded by the efficient equipment of the new observatory at Strassburg, induced Dr. Wislicenus to migrate to that university, with which he remained connected until his early death.

Although Dr. Wislicenus will be best remembered for his literary work, and particularly for that already mentioned, his services to practical astronomy were by no means few or unimportant. In 1882, while still a student at Strassburg, he took part in the German expedition to Bahia Blanca to observe the transit of Venus, and for this task he was eminently fitted by the study he had made of the use of the heliometer. He not only continued to observe with this instrument after his return to Strassburg, but added a series of meridional observations of the zone -2° to -6° , and some of the results of his work are incorporated into two papers, one on the determination of the period of rotation of Mars, and the other on the absolute personal error in meridian observations; but his most important services were rendered in the cause of astronomical literature.

Besides his articles in Valentiner's "Handwörter-

buch der Astronomie" on stellar photometry, spectroscopy, and chronology, he published a treatise on the determination of geographical positions for the use of travellers and explorers which was favourably received. His periodical compilation on the current history of astronomy has proved itself so useful and important that it is to be hoped it will be continued by some other hand. As a teacher of astronomy he is acknowledged to have been very successful. His presentation of the most recondite subjects was masterly and edifying, arresting and retaining the attention of his class.

NOTES.

THE list of honours conferred by the King on the occasion of His Majesty's birthday, November 9, includes the name of Prof. G. H. Darwin, F.R.S., who has been appointed a Knight Commander of the Order of the Bath (K.C.B.). Dr. W. Saunders, director of the experimental farms of the Canadian Department of Agriculture, and Dr. M. A. Ruffer, president of the Egyptian Sanitary Board, have been made Companions of the Order of St. Michael and St. George (C.M.G.). Sir Felix Semon has been appointed Knight Commander of the Royal Victorian Order, and the honour of knighthood has been conferred on Mr. Arthur Chance, president of the Royal College of Surgeons in Ireland, and Prof. McFadyean, principal of the Royal Veterinary College, Camden Town.

THE death of Prof. Albert von Kölliker on November 2, at eighty-eight years of age, has deprived the scientific world of one of the founders of modern systematic histology, and the eldest of the illustrious teachers and investigators in the realms of embryology and comparative anatomy. An outline of his scientific work was given in NATURE of May 5, 1898 (vol. lviii. p. 1), as a contribution to our series of Scientific Worthies; but his memoirs and other writings are so numerous that no adequate description of them can be contained within the limits of a short article. In the course of that appreciative notice, it was pointed out that von Kölliker was one of the first to realise that the complete justification of the cell-theory must be accomplished by a study of the whole history of animal tissues, from the fertilised egg onwards; and his papers on the development of Cephalopods (1844) and of Amphibia (1846-7) represent the first results of this conviction. Von Kölliker went to Würzburg in 1847 as professor of human anatomy, and almost immediately joined von Siebold in founding the *Zeitschrift für wissenschaftliche Zoologie*, to the early numbers of which he contributed a series of important papers. In the article already referred to mention was made of the considerable series of embryological and other papers, and of the masterly text-books, of which he was the author. In 1896, as a recognition of his brilliant scientific services, he was nominated a Knight of the order *pour le mérite*. He was elected a foreign member of the Royal Society in 1860, and received the Copley medal of the society.

DR. CHARLES WALDSTEIN has been created by the King of Denmark a Knight of the Royal Danish Order the Danebrog.

THE *Athenaeum* announces the death, in his seventy-fifth year, of Dr. Johann Meidinger, professor of physics at the Technical Institute in Karlsruhe, and author of a number of works dealing with the practical side of his subject.

THE superintendent of Commercial Agencies in Canada has expressed his conviction, says the *Journal of the Society of Arts*, that the establishment of a service of

commercial agents to reside in British possessions for the purpose of reporting to the Commercial Intelligence Branch of the Board of Trade in London would be of immense benefit to the Empire at large. Such agents should report on all matters concerning the resources, growth, local enterprises, public contracts, openings for trade, and the investments for capital, as is done by His Majesty's consular officers and commercial *attachés* in regard to foreign countries. The superintendent adds that there is not in the whole of Canada a British official who can answer questions of the British exporter concerning Canada, while the Americans "have in the neighbourhood 190 officials."

AT a meeting of the Incorporated Society of Medical Officers of Health on November 10, Dr. Christopher Childs read a paper on a comparative study of the Lincoln, Maidstone, and Worthing epidemics of typhoid fever. After discussing the features presented by these epidemics, Dr. Childs advocated the retention of a staff of experts specially to investigate, at the earliest opportunity, similar outbreaks in the future, such a staff to consist of specially trained medical officers, bacteriologist, chemist, and sanitary inspectors, and organised by an epidemiologist of repute. Moreover, Dr. Childs advocated that in cases where water authorities refuse to listen to the repeated warnings of the medical officer of health with regard to the dangerous character of a water supply, the Local Government Board should take action to cause those authorities to take the best practicable means for removing the dangers to which attention has been directed.

AT the opening meeting of the new session of the Institution of Civil Engineers on November 9, the new president, Mr. John Gavey, C.B., gave an address in which he reviewed the progress of the telegraph and telephone industries during recent years. As illustrating the growth of telegraph and telephone accommodation provided by the Post Office, Mr. Gavey remarked that the telegraph wire mileage increased from 114,242 at March 31, 1880, to 338,120 at March 31, 1905. The telephone wire mileage rose during the same period from 40 to 253,521. There appears to be little prospect of serious competition between telephony and telegraphy after a certain critical distance has been reached. The determination of the distance over which telephonic speech is possible on various types of telephone circuit is a question of the greatest theoretical and practical interest. Telephone administrations have carefully considered what are the extreme limits of effective commercial speech, taking all the facts into consideration, and allowing a large margin of safety, and it is generally considered that from 42 to 46 miles of the English standard cable is the effective commercial limit. As to wireless telegraphy, the opinion was expressed that it is not likely to supplant, or even to compete seriously with, inland methods of communication; nor does it appear probable that it will, at least in the near future, actively compete with highly developed cable communication, although it may supplement that service. In submarine cable work the same progress may be noted as in other branches of telegraphy, the mileage of cable having increased from 87 nautical miles in 1852 to 212,894 miles in 1902, while it is still increasing. The problem of devising submarine cables for long-distance telephones has yet to be solved.

AN official guide to the Victoria Falls, compiled by Mr. F. W. Sykes, the conservator, has been published by the Argus Publishing Co., Ltd., of Bulawayo, at 1s. The guide has been compiled for the use of visitors, and is interesting throughout. On November 17, 1855, that is,